

Claims

1. A double-acting deformable fluid actuator with three chambers, characterized in that it consists of three axisymmetrical coaxial membranes, (10, 11 and 12,) constrained by two end pieces (13 and 14), in order to identify three chambers, an inner chamber (15), an intermediate chamber (16), and an outer chamber (17); each chamber being supplied with fluid under pressure through respective connectors (18, 19 and 20) set on one of the end pieces.

2. The deformable actuator according to Claim 1, characterized in that the outer membrane (10) and inner membrane (12) have limited extensibility along the meridian direction of the actuator, the central membrane (11) being mounted so as to present limited extensibility in a circumferential direction.

3. The deformable actuator according to Claim 1, characterized in that the outer membrane (10) and inner membrane (12) are inextensible along the meridian direction of the actuator, whilst the central membrane (11) is mounted so as to be inextensible in a circumferential direction.

4. The deformable actuator according to Claim 1, characterized in that the central membrane (11) and inner membrane (12) have limited extensibility or are inextensible along the meridian direction of the actuator, whilst the outer membrane (10) is mounted so as to present limited extensibility or to be inextensible in a circumferential direction.

5. The deformable actuator according to Claim 1, characterized in that the central membrane (11) and outer membrane (10) have

limited extensibility or are inextensible along the meridian direction of the actuator, whilst the inner membrane (12) is mounted so as to present limited extensibility or be inextensible in a circumferential direction.

6. The deformable actuator according to Claim 1, characterized in that the membranes present lobes in the areas in which high deformability is required to obtain the phases of pushing and pulling.

7. The deformable actuator according to Claim 1, characterized in that the sets of membranes (10, 11 and 12) are two, set on top of one another, and joined by a circumferential connecting stretch (20), which separates the inner chamber (15) from the external environment.

8. The deformable actuator according to Claim 1, characterized in that the sets of membranes (10, 11 and 12) are three or more sets, arranged on top of one another, and joined by respective circumferential connecting stretches, which separate the inner chamber (15) from the external environment.